

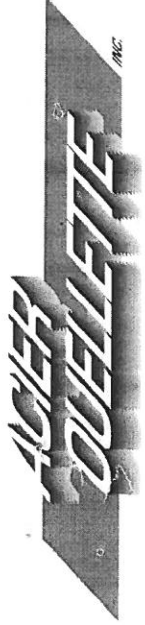
Purchasing Receipts



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	
PO039087	ACI001-VC	4	1	Net 30	MT-4140QT-R3.750	AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT				6	2/28/2018	6		S046344	Stock	2/28/2018	\$ 154.44 / ft	0	
		5			MT-4140QT-R1.000 ASTM	AISI 4140 Quenched & Tempered Steel Round Bar 1.000" Dia. AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT				10		10		S046345	Stock	2/28/2018	\$ 4.66 / ft	0	
		9			MT-HRS-R-2.500	Hot Rolled Steel Round Bar 2.500						10		S046346	Stock	2/28/2018	\$ 13.68 / ft	0	
		10			MT-A513-T-0.750W0.188	A513 Seamless Alloy Steel Round Tubing 0.75" dia. x 0.188" Wall				20		24		S046347	Stock	2/28/2018	\$ 4.25 / ft	0	
		11			M6061T6R0.625	6061-T6 Round Bar .625" : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft				40		40		S046348	Stock	2/28/2018	\$ 1.00 / ft	0	
		12			M6061T6R0.563	6061-T6 Round Bar .563 : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft				96		96		S046349	Stock	2/28/2018	\$ 1.09 / ft	0	
Total:										182			186						

Plex 2/28/2018 9:17 AM Dart.Dubois.Pascal



ACIER OUELLETTE INC.

935, Boul. du Hâvre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

DELIVERY - CLIENT

Copy CO00075651

Customer N° CLI0001056

Date 2018/02/23

Delivery date 2018/02/27

Your order N° 039087

Processed by Josianne Bourdon

Salesman

Carrier OUELLETTE VALLEYFIELD

Credit Terme Net 30 Days

Page 2

Billed to

DART AEROSPACE LTD

1270 , ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att : CHANTAL LAVOIE Tél.: 613-632-5200

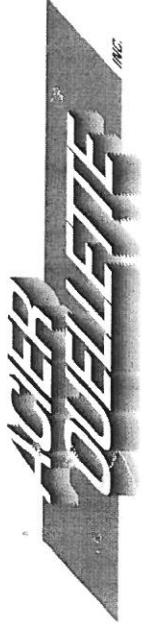
Instruction F-M

Delivery Route 5

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only			
				CMD	EXP	B/O	IN	I	S	OUT
5 ROUND 4140 HEAT TREAT 3 3/4 RANDOM R4140-334H-V 4945 <i>1 X 74' HEAT: L6021</i> <i>AC13839-G-26/02</i>	232.86	6.00	PI_\$CLB		1x74'		6			
6 ROUND 4140 HEAT TREAT 1 RANDOM R4140-1H-V 4919 <i>1 X 10' HEAT: 177569</i> COUPE A LA SCIE SCIE 1	26.70	10.00	PI_\$CLB		1x10'		10			
7 ROUND HR 2 1/2 RANDOM RHR-212-V 4866 <i>1 X 10' HEAT: 6214423605</i>	166.90	10.00	PI_\$CLB		1x10'		10			

NIR : R-109516-6

Next Page..



DELIVERY - CLIENT

Copy

CO00075651

ACIER OUELLETTE INC.
935, Boul. du Havre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Customer N°

CLI0001056

Date

2018/02/23

Delivery date

2018/02/27

Your order N°

039087

Shipped to

Billed to
DART AEROSPACE LTD

1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Processed by

Josianne Bourdon

Salesman

Ontario,

OUELLETTE VALLEYFIELD

Credit Terme

Net 30 Days

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Instruction F-M

Delivery Route 5

Page 3

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only		
				CMD	EXP	B/O	IN	I	S C
COUPE A LA SCIE SCIE 1		1.00	UN						OUT
8 TUBE MEC 0.750 OD X .188 VARIE TME-0750188-V 6783 1 X 20' R/L HEAT: 4150966	22.56	20.00	PI_\$CPT		1x24'		24'		
9 ROUND ALU 5/8 6061-T6 RANDOM RAL-58-V 5169 2 X 20' HEAT: 68259	14.44	40.00	PI_\$CLB		2x20'		2x20'		
10 ROUND ALU 9/16 6061-T6 RANDOM RAL-916-V 5180 8 X 12' HEAT: 201714863	28.13	96.00	PI_\$CLB		8x12'		8x12'		

NIR : R-109516-6

Next Page..



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039087**

Supplier: ACI001-VC
Acier Ouellette Inc.
935 Boul. Du Havre
Valleyfield
QC
J6S 5L1 Canada
Phone: 800 667 4248
Fax: 450 377 5696

PO No: PO039087

PO Date: 2/22/18

Due Date: 2/28/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
FEB 23 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments: quotation # sou0086168

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	M6061T6S1.250X14.000		6061-T6 Sheet 1.250" Thick x 14.000" Wide MATERIAL: 6061-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209	Firmed	3/2/18	8 ft	0 ft	8 ft	\$101.01375/ft	\$808.11
2	MT-4140QT-R0.625		AISI 4140 Quenched & Tempered Steel Round Bar 0.625" Dia. AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	2/28/18	20 ft	0 ft	20 ft	\$2.878/ft	\$57.56
3	MT-4140QT-R2.750		AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	2/28/18	6 ft	0 ft	6 ft	\$37.57666/ft	\$225.46
4	MT-4140QT-R3.750		AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	2/28/18	6.167 ft	0 ft	6 ft	\$154.44341/ft	\$952.45

Line Item Note please cut bar in half to heavy for receiving

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
5	MT-4140QT-R1.000		AISI 4140 Quenched & Tempered Steel Round Bar 1.000" Dia. AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	2/28/18	10 ft	0 ft	10 ft	\$4.664/ft	\$46.64
6	M17-4-H1150-R2.000		17-4 SS Round Bar 2.000" : MATERIAL: 17-4 PH CONDITION H1150 receive ft	Firmed	3/6/18	6 ft	0 ft	6 ft	\$100.3333/ft	\$602.00
7	M17-4-H1150-R1.500		17-4 SS Round Bar 1.500" : MATERIAL: 17-4 PH CONDITION H1150 receive ft	Firmed	3/9/18	7.667 ft	0 ft	8 ft	\$56.08744/ft	\$430.02
8	M1018R3.125		1018 Round Bar 3.125 MATERIAL: AISI 1018-1025 ROUND BAR M1010S20GA AS PER MIL-S-7097 OR ASTM A108	Firmed	3/9/18	8 ft	0 ft	8 ft	\$60.375/ft	\$483.00
9	MT-HRS-R-2.500		Hot Rolled Steel Round Bar 2.500	Firmed	2/28/18	10 ft	0 ft	10 ft	\$13.676/ft	\$136.76
Line Item Note please cut bar in half to heavy for receiving										
10	MT-A513-T-0.750W0.188		A513 Seamless Alloy Steel Round Tubing 0.75"dia. x 0.188" Wall	Firmed	2/28/18	20 ft	0 ft	20 ft	\$4.25/ft	\$85.00
11	M6061T6R0.625		6061-T6 Round Bar .625" : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	2/28/18	40 ft	0 ft	40 ft	\$0.99625/ft	\$39.85
12	M6061T6R0.563		6061-T6 Round Bar .563 : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	2/28/18	96 ft	0 ft	96 ft	\$1.0897222/ft	\$104.61

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
13	M6061T6R2.375		6061-T6 Round Bar 2.375" : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	2/28/18	4 ft	0 ft	4 ft	\$28.75/ft	\$115.00
14	M6061T6R3.750		6061-T6 Round Bar 3.750" : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	2/28/18	4 ft	0 ft	4 ft	\$56.25/ft	\$225.00
15	M6061T6R6.250		6061-T6 Round Bar 6.250" : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	2/28/18	4 ft	0 ft	4 ft	\$147.00/ft	\$588.00
									Grand Total: \$4,899.47	

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.



Plex 2/22/18 1:26 PM dart.lavoie.chantal

**ACIER OUELLETTE INC.**

935, Boul. du H vre
Salaberry de Valleyfield (Qu bec) J6S 5L1
T l.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Quotation**SOU0086168****Billed to**

DART AEROSPACE LTD
1270 , ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att : CHANTAL LAVOIE T l.: 613-632-5200

Customer N 

CLI0001056

Date

2018/02/14

Revision N 

0

Prices valid until**2018/02/21****Your Order N ****Processed by**

Josianne Bourdon

Salesman

JOSIANNE

Carrier

OUELLE SDV

Credit Terms

Net 30 Days

Page

1

Product N� and description	Weight	Qty U/M	Qty U/M	Price	Pcs Nb	Price	Amount
ALU PLATE 1 1/4 6061-T651 RANDOM PAL-1146061-V 7453 1 X 14" X 96" 4-5 JOURS	179.60	10.00 PI2_\$CLB	10.00 PI2		1.00	808.110	808.11
ROUND 4140 HEAT TREAT 5/8 RANDOM R4140-58H-V 4977 1 X 20' R/L 2-3 DAYS	20.86	20.00 PI_\$CLB	20.00 PI		1.00	57.560	57.56
ROUND 4140 HEAT TREAT 2 3/4 RANDOM R4140-234H-V 4931 1 X 6' 2-3 DAYS COUPE A LA SCIE SCIE 1	126.78	6.00 PI_\$CLB	6.00 PI		1.00	225.460	225.46
ROUND 4140 HEAT TREAT 3 3/4 RANDOM R4140-334H-V 4945 1 X 74" 2-3 DAYS	232.86	6.00 PI_\$CLB	6.00 PI		1.00	952.400	952.40
ROUND 4140 HEAT TREAT 1 RANDOM R4140-1H-V 4919 1 X 10' STOCK COUPE A LA SCIE SCIE 1	26.70	10.00 PI_\$CLB	10.00 PI		1.00	46.640	46.64
ROND 17-4 H1150 2" DIA N 1 X 6' 6-8 DAYS	0.00	1.00 UN	1.00 UN		1.00	602.000	602.00
ROND 17-4 H1150 1 1/2" DIA N 1 X 92" 7-10 DAYS	0.00	1.00 UN	1.00 UN		1.00	430.000	430.00
ROND CR 1018 3 1/8" DIA N 1 X 8' 7-10 DAYS	0.00	1.00 UN	1.00 UN		1.00	483.000	483.00

Date :

Next Page...

**ACIER OUELLETTE INC.**

935, Boul. du Havre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Quotation

SOU0086168

Billed to

DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Customer N° CLI0001056
Date 2018/02/14
Revision N° 0
Prices valid until 2018/02/21
Your Order N°
Processed by Josianne Bourdon
Salesman JOSIANNE
Carrier OUELLE SDV
Credit Terms Net 30 Days
Page 2

Product N° and description	Weight	Qty	U/M	Qty	U/M	Price	Pcs Nb	Price	Amount
ROUND HR 2 1/2 RANDOM RHR-212-V 4866 1 X 10' STOCK COUPE A LA SCIE SCIE 1	166.90	10.00	PI_\$CLB	10.00	PI		1.00	136.760	136.76
TUBE MEC 0.750 OD X .188 VARIE TME-0750188-V 6783 1 X 20' R/L STOCK	22.56	20.00	PI_\$CPI	20.00	PI		1.00	85.000	85.00
ROUND ALU 5/8 6061-T6 RANDOM RAL-58-V 5169 2 X 20' STOCK	14.44	40.00	PI_\$CLB	40.00	PI		2.00	19.925	39.85
ROUND ALU 9/16 6061-T6 RANDOM RAL-916-V 5180 8 X 12' STOCK	28.13	96.00	PI_\$CLB	96.00	PI		8.00	13.077	104.62
ROND ALU 2 3/8" OD 6061T6 N 1 X 4' 3-4 DAYS	0.00	1.00	UN	1.00	UN		1.00	115.000	115.00
ROND ALU 3 3/4" OD 6061T6 N 1 X 4' 3-4 DAYS	0.00	1.00	UN	1.00	UN		1.00	225.000	225.00
ROND ALU 6 1/4" OD 6061T6 N 1 X 4' 3-4 DAYS	0.00	1.00	UN	1.00	UN		1.00	588.000	588.00
SURCHARGE ENERGETIQUE FRAIS_ENERGETIQUE			\$						3.95

Total Weight (Lbs)

818.83

Important

This offer is based on availability and current pricing conditions that may be revised upon reception of the order.

This offer is subject and conditional to credit approval.

Approved and Accepted by :

Date :

Sub-total

4 903.35

TVH-13 · · 637.44

Total (\$CAD)**5 540.79**

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R1.000
 DATE: FEB 28 2018

PO / BATCH NO.: 039087/5046345

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 101
 QUANTITY INSPECTED: 101
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.000
 THICKNESS RECEIVED: 1.000
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	For Dart tooling only ID.
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	Heat # 177569
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 FEB 28 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

8 7 6 5 4 3 2 1


REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-790	17.12.13	VM	ML
B	MIN & MAX Rc CHANGED	18-523	18.01.24	VM	ML
C	ADD AISI 4142	18-544	18.02.14	ML	ML

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 / 4142 STEEL BAR
MINIMUM ROCKWELL C = 28 Rc
MAXIMUM ROCKWELL C = 32 Rc

SPECIFICATION: ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S-5626, MIL-S-24093

PART NUMBER: MT-4140-B-[T.TTT] x [W.WWW]
WHERE "T.TTT" = THICKNESS IN INCHES
WHERE "W.WWW" = WIDTH IN INCHES
EX. 4.0" x 6.0" BAR = MT-4140-B-4.000x6.000



DART
AEROSPACE

NEWBURY, OREGON, CHINA

TITLE

AISI 4140 / 4142 STEEL BAR

PART NO.

MT-4140-B

TOOL NO.

C

REV

C

INITIALS AND DATE

DESIGNED BY: ML 02/14/2018

DRAWN BY: ML 02/14/2018

CHECKED BY: VM 02/14/2018

MFG REVIEW BY: DD 02/14/2018

APPROVED BY: ML 02/14/2018

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
FRACTIONS ± 1/8"
DECIMALS ± 0.005"
ANGLES ± 0.1°
SURFACE FINISH: 32 RMS
TOLERANCES: FRACTIONS ± 1/8"
ANGLES ± 0.1°
SURFACE FINISH: 32 RMS

SCALE: NTS

SHEET 1 OF 1

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Noted

8 7 6 5 4 3 2 1

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R3.750
 DATE: FEB 28 2018

PO / BATCH NO.: 039087/5046344

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 6'
 QUANTITY INSPECTED: 6'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 3.750
 THICKNESS RECEIVED: 3.750
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	Astm A29
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	Heat# L6021
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 FEB 28 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in


REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-790	17.12.13	VM	ML
B	MIN & MAX RC CHANGED	18-523	18.01.24	VM	ML
C	ADD AISI 4142	18-544	18.02.14	ML	ML

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 / 4142 STEEL BAR
 MINIMUM ROCKWELL C = 28 Rc
 MAXIMUM ROCKWELL C = 32 Rc

SPECIFICATION: *Hel* ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S-5626, MIL-S-24093

PART NUMBER: MT-4140-B-[T.TTT] x [W.WWWW]
 WHERE "T.TTT" = THICKNESS IN INCHES
 WHERE "W.WWWW" = WIDTH IN INCHES
 EX. 4.0" x 6.0" BAR = MT-4140-B-4.000x6.000

 DART Aerospace		TITLE AISI 4140 / 4142 STEEL BAR	
PART NO. MT-4140-B		DESIGNED BY: VM 12/13/2017 DRAWN BY: VM 02/14/2018 CHECKED BY: VM 02/14/2018 APPROVED BY: ML 02/14/2018	
TOOL NO. C		INITIALS AND DATE DESIGNED BY: VM 12/13/2017 DRAWN BY: VM 02/14/2018 CHECKED BY: VM 02/14/2018 APPROVED BY: ML 02/14/2018	
DIMENSIONS APPLY AFTER FINISHING DIMENSIONS: 1/8" TOLERANCES DECIMALS: .0005 FRACTIONS: 1/16 SURFACE: 3.2 ROUGHNESS: 1.0		SCALE: 1:1 SHEET 1 OF 1	

Hel

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-HRS-R-2.500
 DATE: FEB 28 2018

PO / BATCH NO: 039087/5046346

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 10'
 QUANTITY INSPECTED: 10'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.500
 THICKNESS RECEIVED: 2.500
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	<u>Astun A36</u>
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	<u>Heat # 6214423605</u>
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS</u> <u>11</u>	SIGNED OFF BY: _____		
DATE: <u>9-8 FEB 28 2018</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE		07/09/2017	SAC	WM
B	CORRECTED DRAWING NUMBER IN TITLE BLOCK	17-645	08/10/2017	SAC	WM

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL:

SPECIFICATION:

PART NUMBER:

EXAMPLE:

HOT ROLLED STEEL ROUND BAR

ASTM A36 OR ASTM A1011 OR A4W OR ASTM A1018

MT-HRS-R-ID.DDD

WHERE D.DDD IS DIAMETER IN INCHES

MT-HRS-R-0.250

TOLERANCES PER MANUFACTURER SPECIFICATIONS

DART AEROSPACE Hawthorn, Ontario, Canada	
TITLE HOT ROLLED STEEL ROUND BAR	
DWG NO. MT-HRS-R	REV. B
DESIGN BY: SAC 07/09/2017 DRAWN BY: SAC 10/06/2017 CHECKED: N/A 10/10/2017 WFG. APPR: JDE 10/10/2017 APPROVED: N/A 10/10/2017 DATE: 06/10/2017	XXX ± .005 TOLERANCES ± .005 XX ± .01 ANGLES ± .01 XX ± .01 SURFACES ± .01 UNLESS OTHERWISE SPECIFIED 2 INTERPRET DIM AND TOL PER 3 DIMENSIONAL LIMITS APPLY
SCALE: NTS WEIGHT: NALBS	SHEET 1 OF 1

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-A513-T-0.750W0.188
 DATE: FEB 28 2018

PO / BATCH NO.: 039087/5046347

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 24'
 QUANTITY INSPECTED: 24'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W0.188
 THICKNESS RECEIVED: W0.188
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	Astm A513 Type 5
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	Heat # 4150966
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 FEB 28 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061H6.RO.625
 DATE: FEB 28 2018

PO / BATCH NO.: 039087/5046348

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 40'
 QUANTITY INSPECTED: 40'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625
 THICKNESS RECEIVED: 0.625
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	Astm B-221
CORRECT THICKNESS	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	Heat # 68259
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9 FEB 28 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR

SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221

PART NUMBER: M6061T6R[D.DDD]
DIA.

WHERE "D.DDD" = DIAMETER IN INCHES

EG. 5/8" ROUND BAR = M6061T6R0.625

RELEASED
2009-09-09
NAD

B	REFORMAT DWG, ADD B211 & B221 SPEC (ZN D8-1), REF PAR 08-020A	CP	09.07.13
A	NEW ISSUE	DS	01.06.08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	09.07.13		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M6061T6R		REV. B	
TITLE 6061-T6 ROUND BAR		SHEET 1 OF 1	
SCALE NTS		DATE 09.07.13	
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M606146R0.563
 DATE: FEB 28 2018

PO / BATCH NO.: 0389087/5046349

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 96
 QUANTITY INSPECTED: 96
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.563
 THICKNESS RECEIVED: 0.563
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	<u>Astin-B221</u>
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	<u>Heat # 201714863</u>
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS</u> <u>11</u>		SIGNED OFF BY: _____	
DATE: <u>9-89</u> <u>FEB 28 2018</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR

SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221

PART NUMBER: M6061T6R[D.DDD] DIA.

WHERE "D.DDD" = DIAMETER IN INCHES

EG. 5/8" ROUND BAR = M6061T6R0.625

RELEASED
2009-09-09
NAD

B	REFORMAT DWG, ADD B211 & B221 SPEC (ZN D8-1), REF PAR 08-020A	CP	09.07.13
A	NEW ISSUE	DS	01.06.08
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	09.07.13		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M6061T6R		REV. B SHEET 1 OF 1	
TITLE 6061-T6 ROUND BAR		SCALE NTS	
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CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 01 of 02

Certification Date
26-FEB-2018

CUSTOMER ORDER NUMBER
NUMÉRO DE COMMANDE DU CLIENT

Invoice Number
S704068

AC00013839
PART NUMBER/NUMÉRO DE PIÈCE
506446

SOLD TO: ACIER OUELLETTE INC. SHIP TO: ACIER OUELLETTE INC.
VENDU À: DIVISION SALABERRY DE VALLEYFIELD DIVISION SALABERRY DE VALLEYFIELD
935, BOUL. DU HAVRE 935, BOUL. DU HAVRE
SALABERRY-DE- VALLEYFIELD QC J6S 5L1 SALABERRY-DE- VALLEYFIELD QC J6S 5L1

Description: 4140/4142 HR HT BAR STRESS FREE 269/321 BHN
3-3/4 RD X 6'2.0" (74.0") REMNANT Line Total: 231.8 LB
HEAT: L6021 ITEM: 506446

Specifications:
ASTM A193 GR B7 16 ASTM A434 GR BC 15 ASME SA193 GR B7 15
ASTM A29 15 ASTM E381 01 ASTM A962 16A
EN 10204 3.1 04

CHEMICAL ANALYSIS

C	MN	P	S	SI	CR	NI	MO
0.43	0.95	0.0090	0.02	0.24	0.98	0.16	0.20
CU	AL						
0.25	0.026						

RCPT: R267205

COUNTRY OF ORIGIN : USA

MECHANICAL PROPERTIES

DESCRIPTION	YLD STR PSI	ULT TEN PSI	%ELONG IN 02 IN	%RED IN AREA	HARDNESS BHN
	119825.0	139497.0	16.6	52.7	320

IDEAL DIAMETER : 6.16 IN GRAIN SIZE : 5 -

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. /Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. /Les informations fausses, fictives ou frauduleuses en rapport avec le résultat des essais sont punissables en vertu des lois fédérales.

Material did not come in contact with mercury while in our possession. /Par les présentes, nous certifions que le matériel couvert par ce rapport n'a pas été en contact avec le mercure pendant sa possession.

JOANNE DESPRES
Joanne Despres

MANAGER QUALITY ASSURANCE
GÉRANT DE L'ASSURANCE QUALITÉ

CERTIFICATE OF TEST CERTIFICAT D'ESSAIS

Page 02 of 02

Certification Date
26-FEB-2018

CUSTOMER ORDER NUMBER
NUMÉRO DE COMMANDE DU CLIENT

AC00013839

Invoice Number
S704068

PART NUMBER/NUMÉRO DE PIÈCE
506446

SOLD TO:	ACIER OUELLETTE INC.	SHIP TO:	ACIER OUELLETTE INC.
VENDU À:	DIVISION SALABERRY DE VALLEYFIELD	EXPÉDIÉ À:	DIVISION SALABERRY DE VALLEYFIELD
	935, BOUL. DU HAVRE		935, BOUL. DU HAVRE
	SALABERRY-DE- VALLEYFIELD QC J6S 5L1		SALABERRY-DE- VALLEYFIELD QC J6S 5L1

Description: 4140/4142 HR HT BAR STRESS FREE 269/321 BHN
3-3/4 RD X 6'2.0" (74.0") REMNANT Line Total: 231.8 LB
HEAT: L6021 ITEM: 506446

STRAND CAST REDUCTION RATIO 39.1 TO 1
MATERIAL IS FREE FROM MERCURY CONTAMINATION
NO WELD REPAIR PERFORMED ON MATERIAL
THERMAL TREATMENT: OK
QUEN: MIN 1700 MAX 1750 DEG FAR
TEMP MIN 1100 DEG FAR
AUSTEN: 1625F .1HOURS-WATER QUENCH
TEMPER: 1280F .2 HOURS
MACRO: OK

COMMENTS

MELTED AND MFG IN THE USA
CONFORMS TO 1E0509 #22 KB 8-25-17
APPROVED FOR 1E0028 P/N 363-9881 PER ETQ DEVIATION ADF 8/30/17

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. /Les informations ci-haut-mentionnées sont transcrites du certificat d'essais du manufacturier après vérification de l'état complet des spécifications inscrites sur le certificat. We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.
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Material did not come in contact with mercury while in our possession. /Par les présentes, nous certifions que le matériel couvert par ce rapport rencontre les spécifications décrites ci-haut.

Joanne Despres

MANAGER QUALITY ASSURANCE
GÉRANT DE L'ASSURANCE QUALITÉ

Eaton Steel Bar Company Inspection Certificate 1686880

EN 10204:2004-3.1

Customer	BOL	Ship Date	Customer PO	Item	Customer Item	Item Description
	222244	13-Dec-2017	B38384	11142 rev 005	506295	1 HR RD 4140/42MM 24ft6in SBQ QTSE FG MST

All bundles listed below were produced using steel from Heat 177569 issued by ALTON STEEL and were completed from Eaton Steel Job 828517.

Chemistry	Description	Value	Units	Mechanical	Description	Value	Units
C	Carbon	0.41000	PMGT	TENSILE PSI	Tensile Strength in PSI Units	148000	PSI
Mn	Manganese	0.69000	PMGT	YIELD PSI	Yield Strength in PSI Units	138000	PSI
P	Phosphorus	0.01300	PMGT	ELONGATION	Percent Elongation	17.00	PCT
S	Sulfur	0.02000	PMGT	REDUCTION	Percent Reduction in Area	52.0	PCT
Si	Silicon	0.23000	PMGT	BRINELL SURF	Brinell Surface	271.0	BHN
Ni	Nickel	0.08900	PMGT	Heat Treating	Description	Value	Units
Cr	Chromium	0.84700	PMGT	TEMPER TEMP F	Temper Temp in Fahrenheit	500 - 2500	DRGF
Mo	Molybdenum	0.15900	PMGT	AUSTEN TEMP F	Austenitize Temp in Fahrenheit	1600 - 1700	DRGF
Al	Aluminum	0.00300	PMGT	SR TEMP F	Stress Relief Temp in Fahrenheit	500 - 2500	DRGF
Cu	Copper	0.25000	PMGT	MAGNETISM-HT	Magnetism in Gauss	0 - 20	GN
V	Vanadium	0.02800	PMGT	TIME AT TEMP	Time at Temperature	Report	
Co	Columbium	0.00300	PMGT	QUENCH MEDIA	Quench Media Requirements	P&H/O	
N	Nitrogen	0.01100	PMGT	STRESS FREE	Cert stress free	CERTIFIED	
P+S	Element Sum Limit	0.03300	PMGT	HT4140-42QT	Quench & Temper	CONFORMS	
DI	Ideal Diameter	4.94000	IN	MMI Processing	Description	Value	Units
Cleanliness	Report macro etch results.	Value	Units	MELT COUNTRY	Melted in Country	USA	
MACRO ETCH	Report macro etch results.	Value	Units	ROLLED COUNTRY	Rolled in Country	USA	
Geometry	Description	Value	Units	RED RATIO	Reduction Ratio	4.94	RED
DIMETER	Diameter	0.9910 - 1.0090	IN	ASTM Standard	Description	Value	Units
Jominy	Description	Value	Units	A193/193M-01	Grade B7	CONFORMS	
J1	1/16 inch from Quenched End	56	HRC	A304-05	Carbon & Alloy Steel Bars End Quench Req	CONFORMS	
J2	2/16 inch from Quenched End	56	HRC	A322-13	Steel Bars, Alloy, Standard Grades	CONFORMS	
J3	3/16 inch from Quenched End	56	HRC	A434-90a-BC	ASTM A BC Tensile and Yield properties	CONFORMS	
J4	4/16 inch from Quenched End	56	HRC	Structure	Description	Value	Units
J5	5/16 inch from Quenched End	55	HRC	PERCENT TM	Percent Tempered Martensite	80 - 100	PCT
J6	6/16 inch from Quenched End	55	HRC	MICROSTRUCTURE	Reported Microstructure	TM	
J7	7/16 inch from Quenched End	54	HRC	Tag Number	Qty/Units	Length	
J8	8/16 inch from Quenched End	52	HRC	022-2158147	2925 LBS	24ft6in	
J9	9/16 inch from Quenched End	51	HRC				
J10	10/16 inch from Quenched End	50	HRC				
J11	11/16 inch from Quenched End		HRC				
J12	12/16 inch from Quenched End	47	HRC				
J14	14/16 inch from Quenched End	45	HRC				
J16	16/16 inch from Quenched End	42	HRC				
J18	18/16 inch from Quenched End	42	HRC				
J20	20/16 inch from Quenched End	41	HRC				
J22	22/16 inch from Quenched End		HRC				
J24	24/16 inch from Quenched End	39	HRC				
J28	28/16 inch from Quenched End	36	HRC				
J32	32/16 inch from Quenched End	35	HRC				

Bundle tags with Eaton Steel identifiers reference the steel grade, heat, purchase order number where applicable, part number, product description and quantity. Material produced in accordance with Eaton Steel's Quality Manual QM-00002 Rev 0 dated 11/21/2013.

We hereby certify the above to be in conformance, and a true copy of data represented in company records. This steel was not subject to weld repair or exposed to mercury while in the possession of Eaton Steel.

Created on 13-Dec-2017

Thomas Snabes, Corporate Metallurgist

This document was prepared by means of electronic data processing and is valid without signature.

10221 Capital Avenue, Oak Park, MI 48237 USA
http://www.eatonsteel.com

Tel: 248-398-3434
Fax: 248-398-1434



BILL TO

SHIP TO

Eaton Steel Corporation
10221 Capital Avenue

Eaton Steel Corporation
c/o Apollo Heat Treat

Oak Park, MI 48237

Oak Park, MI 48237

Date	08/25/2017	Customer PO	
ASI Ord No.	67517	Customer PT.	10913

Specifications
SAE 4140

Item Description	

Host Number

Yield PSI

Tensile PS

Elongation

Be

1

CHEMICAL ANALYSIS TEST METHODS ASTM E-415 & E-1019

—

100 1000 10000

Host Number	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Sn	Al	Nb/Cb	V	B	Ti	N	Ca
752589	0.41	0.89	0.013	0.020	0.23	0.25	0.089	0.847	0.159	0.011	0.003	0.003	0.028	0.0003	0.0001	0.0110	0.0019

JOINTLY HARDENABILITY USING ASTM A-255 CALCULATED FROM CHEMICAL DI

Heat Number	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23
G5	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
7	4/94	56	55	56	55	54	52	51	50	47	45	42	42	41	39	36	35	34	33	32	31	30	29

SPECIAL TEST RESULTS

ASTM E-415 Method A:

ASTM E-45 Method C:

ASTM E-381

Cherry

ardness

Heat Number	TA	TB	TC	TD	HA	HB	HC	HD	S	O	S	O	S	R	C	HC	RD	ASH
177569														1	2			

ADDITIONAL COMMENTS

Alteration or reproduction of this report, except in full, is not

Alton Steel Incorporated.

IN THE RECORDS OF ALTON STEEL INCORPORATED

Dunlop and Cochrane
Cochrane Hall

_____ Day of _____

My commission expired

(Notary Public)

East Hall



Huntington Facility - Test Report

29 Commercial Road, Huntington, IN 46750
(260) 356-9520
fax (260) 356-9522

Printed: 10/24/2017 11:10 AM

Sales Order	41745	Customer Name	EATON STEEL CORPORATION
Heat Number	177659	Location	10221 CAPITAL AVE.
Size	1.0000		OAK PARK, MI 48237
Turned OD	1.0000		
Grade	4140		

Test Remarks: 1 HR RD 4140/42MM 25FT FQ FQ MST
W0 828517 F6 11142

Approved ☒ By Metallurgist Approved Date 10/24/17

Chemistry Data													
Heat Number	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	V	B	Other
177659	0.410	0.880	0.013	0.020	0.230	0.088	0.947	0.159	0.250	0.003	0.028	0.0030	

QAT Hardness Test Data			
Hardness Type	Min	Max	Location
Rc		27.9	Surface
Rc		32.7	Mild Radius
Rc		33.7	Core

QAT Tension Test Data							
Sample Gauge: .500" Dia.							
Bale Number:							
Tensile	Yield 1	Method 1	Yield 2	Method 2	Elong %	R/A %	Gage Length
148 KSI	138 KSI	2% Offset			17.0	52.0	2.000" G.L.

Heat Test Data
Austenitized at 1,530°F for 0.7 minutes
Tempered at 1,400°F for 0.7 minutes
Induction Heating
Water Quenched

Other Test Data			
Decarb (inches)	Straightness (inches)	Magnetism (gauss)	As Quenched (Rc)
	0.125"/5 Ft	+/- 5	Microstructure

Description of Other Tests
• Produced Stress Free

We hereby certify that the reported data are correct according to Gerdaus tests and those of its suppliers.

Doug Meach, Metallurgist



231

CERTIFIED MATERIAL TEST REPORT

Page 1/1

DOCUMEE	HEAT / BATCH
0000601929	62144236/05

CSA G40 20-1 & G40 21-13

DATE
10/04/2017

Si	Mn	P	S	Si	Cu	Ni	C	Mo	V	Nb	Su
0.17	0.76	0.005	0.013	0.26	0.17	0.08	0.13	0.015	0.029	0.001	0.018

Elong.	G/L
30.00	2.000
29.00	2.060

8.47

D1 2359

0.60

Roll batch 6214423605 roll date 7/10/2017

CSA-G40 30-13/G40 21-13 (R2009) Grade 44W

THIS GRADE MEETS AOB PRECISELY AS I'M AOB/AOB/M-14 A6/A6/M-14

materials have been tested in the USA. Manufacturing processes for this steel, which may include strip rolling in an electric arc furnace and hot rolling, have been performed at Gerdau St. Paul Mill, 1678 Rd rock Rd. St. Paul, Minnesota, USA. All products produced from standard boilers. Silicon killed (deoxidized) steel. No weld repairs are performed. Steel not exposed to mercury or any liquid alloy which is liquid at ambient temperatures during processing or while in Gerdau St. Paul Mill's possession. Any Modification to this certification as provided by Gerdau St. Paul Mill without the expressed written consent of Gerdau St. Paul Mill negates the validity of this test report. This report shall not be reproduced except in full, without the expressed written consent of Gerdau St. Paul Mill. Gerdau St. Paul Mill is not responsible for the inability of this material to meet specific applications

The above figures are certified chemical and physical test records as contained in the permanent records of company. We certify that these data are correct and in compliance with specified requirements. This material, including the billers, was melted and manufactured in the USA. CMTR samples with EN 10204 3.1

QUALITY DIRECTOR

ALEX BRANDENBURG
QUALITY ASSISTANCE MGR

#6783

Turn 34188

Mid-West Mfg. LLC
A PTC Alliance Company
475 East 16th Street
Chicago Heights IL 60411-

REPORT OF CHEMICAL AND MECHANICAL TESTS

20-SEP-201

This material conforms to:

length 201-241
Grade 1026-AK

TAG: BC6524-01

TAG:

750/755" OD X 375/370" ID X (.188" REF WALL)
C-1026 ASTM A513 TYPE 5
SRA
20/24' RANDOM LENGTHS

CHEMICAL AND MECHANICAL CERTIFICATIONS REQUIRED

Customer PO Number : BC6524-01
Order Number : 356603 Line 1
Manufactured To : MARMON/CANADA-A513TS-1026-SRA
Customer's Part : N/A
Your Vendor Code :
Bill of Lading # : 400914
Part Code : 71584

CHEMICAL ANALYSIS - PERCENT COMPOSITION				MECHANICAL PROPERTIES			
Lot Number	Heat Number	Yr-Vdr	C	MN	P	SI	CU
C21025290	4150966	16-221	0.230	0.66	0.011	0.003	0.030
Lot Number	Heat Number	Yr-Vdr	Yield Str	Tensile Str	Percent Elong	Hardness (Rockwell B)	
C21025290	4150966	16-221	83,700 PSI	107,200 PSI	16	98.	

TUBE MANUFACTURING SOURCE IS: MADE IN THE USA

HEAT# 4150966 STEEL MELT MILL SOURCE IS: Mitchell (Cleveland, OH)
HEAT# STEEL MELT MILL SOURCE IS:

Form # PT 1000 Reviewed 25-Nov-2013

Authorized Signature

[Signature]

(Quality Assurance)

Date

9/20/16

We here certify that the chemical analysis and/or tests shown in this report are correct as contained in the records of this company

Knowingly and willingly falsifying or concealing a material fact on this form, or making false, fictitious or fraudulent entries or representations herein could constitute a felony punishable under federal statutes.

5169

KHL 50

TRA 2108
496.76

Test de dureté Rockwell Rockwell Hardness Test

Client / Customer : **LES ACIERS TRANSBEC (1997) LTEE.**

Adresse / Address : **4054 BOUL. LE CORBUSIER, #201
LAVAL, QC
H7L5R2**

commande Sapa / Sapa order # : **6120924**

bon de commande / Purchase order # : **OU-47030**

de matrice / Die # : **MS 9907**

Description: **5/8" DIA ROD**

Alliage & trempage / Alloy & temper : **6061 T6** Longueur / Length : **6097 mm**

de contrôle / Control # : **82387-1**

de coulée / Cast # :

68259

Dureté Rockwell E /
Rockwell E hardness : **89 HRE**

Min. requis /
Min. required : **88 HRE**

Max. permis /
Max. permitted : **100 HRE**

Composition chimique typique / Typical chemical composition :

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti
6063	0.20 - 0.60	0.35 Max	0.10 Max	0.10 Max	0.45 - 0.90	0.10 Max	0.10 Max	0.10 Max
6005	0.60 - 0.90	0.35 Max	0.10 Max	0.10 Max	0.40 - 0.60	0.10 Max	0.10 Max	0.10 Max
6005A	0.66 - 0.74	0.14 - 0.28	0.08 - 0.16	0.18 - 0.26	0.46 - 0.54	0.03 Max	0.05 Max	0.05 Max
6061	0.40 - 0.80	0.70 Max	0.15 - 0.40	0.15 Max	0.80 - 1.20	0.04 - 0.35	0.25 Max	0.15 Max
6351	0.7 - 1.3	0.5 Max	0.10 Max	0.40 - 0.80	0.40 - 0.80	—	0.20 Max	0.20 Max

Nous certifions que le matériel fourni rencontre les exigences chimiques telles qu'annoncées par la norme ASTM B-221-14 excepté pour la section 8.2 (nombre de spécimen) .

We hereby certify that the material supplied meets the chemical properties as published by the ASTM B-221-14 except for section 8.2 (number of specimen) .

Sincèrement vôtre,
Yours truly,

date : **2017-02-02**

Daniel Alfredo Pelletier
Directeur Qualité
Quality Director

KHL 50



Service Center Metals
5850 Quality Way
Prince George, VA 23875

**CERTIFIED INSPECTION REPORT AND TEST RESULTS
FOR EXTRUDED PRODUCTS**



OUR ORDER NUMBER	ITEM
929759	2

MANIFEST NUMBER 344426
CUSTOMER PO VIM-643085
CUSTOMER PART NUMBER RD0370

DIE NUMBER RD0370
ALLOY / TEMPER 6061-T6511
DATE OF SHIPMENT 9/21/2017
SALESPERSON D. Schroeder (Canada)
DESCRIPTION Lightning Rod Tie 0.562 + .004/- .003

CERTIFICATION
ASTM-B221-14 No Stencil
SPECIFICATION
AMS-QQA-200/8 Rev-A

We hereby certify that the material covered by this report has been inspected in accordance with the most recent certification revision, and has been found to meet the applicable requirements described herein, including any specifications forming a part of the description, and that samples representative of the material met the composition limits and had the mechanical properties shown. Items produced and certified as 6061-T6511 also meet the requirements of 6061-T6.

All aluminum products supplied by Service Center Metals, LLC contain no functional mercury. Neither mercury nor its compounds are used in the manufacture of aluminum products at our facility. Furthermore, aluminum products supplied by Service Center Metals have not, to the best of our knowledge, contacted any source of mercury.

SCM is ISO 9001-2015 certified This product is RoHS-2, REACH, and DfARS compliant

Mechanical Properties

Tests	Lot No.	Test Date	Ultimate Tensile Strength (KSI)	Yield Strength (KSI)	Percent Elongation
	1 201714863	9/21/17	min 47.80 max 47.80	min 44.40 max 44.40	min 15.80 max 15.80

Chemical Composition for Aluminum Alloy 6061

Cast #	Lot No.	Alloy	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al	Others		Melt Source:
												Each	Total	
101M170825B	201714863	6061	0.76	0.36	0.32	0.10	0.88	0.11	0.05	0.03	97.40	0.05	0.15	United States of America
103E170530A	201714863	6061	0.74	0.36	0.32	0.11	0.89	0.16	0.05	0.03	97.32	0.05	0.15	United States of America

CM products are melted and extruded in the USA

Calvin J. Wiggins, Director of Quality & Technical Services

Print Date: 9/21/2017

49946 PO 13471 #5180